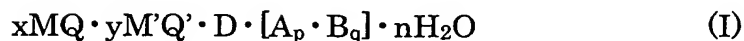


CLAIMS

1. A pyrrhithione complex compound represented by the formula (I):



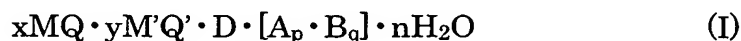
wherein M represents a divalent metal, M' represents a trivalent metal, Q represents one oxygen atom or two hydroxyl groups, Q' represents 3/2 oxygen atoms or 3 hydroxyl groups, x, y, p, q and n respectively denote 0 or a positive number satisfying the following equations: $0 \leq x \leq 7$, $0 \leq y \leq 6$, $0 \leq p + 2q < 6/5$ and $0 \leq n \leq 7$, (provided that x and y are not 0 at the same time), D represents $M(Py)_{2-p-2q}$ when $x \neq 0$ and $M'(Py)_{3-3p/2-3q}$ when $x = 0$, Py represents 2-pyridylthio-N-oxide, A represents a monovalent anion other than Py or shows that it does not exist and B represents a divalent anion or shows that it does not exist.

2. A pyrrhithione complex compound according to Claim 1, wherein, in the formula (I), M is at least one divalent metal selected from Zn and Cu, M' is Al, A is a monovalent anion selected from Cl and NO₃ or shows that it does not exist, B is at least one divalent anion selected from CO₃ and SO₄ or shows that it does not exist and x, y, p, q, n, Q, Q' and D respectively have the same meaning as above.

3. A pyrrhithione complex compound according to Claim 1, wherein, in the formula (I), M is zinc, Q is one oxygen atom, D is zinc pyrrhithione, $y = 0$, $p + 2q = 0$, $n = 0$, A and B do not exist and x is 1/3.

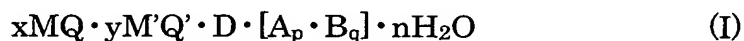
4. A pyrithione complex compound according to Claim 1, wherein, in the formula (I), M is copper, Q is one oxygen atom or two hydroxyl groups, D is copper pyrithione, $y = 0$, $p + 2q = 0$, $0 \leq n \leq 1$, A and B do not exist and x is 1/3.

5. A process for producing a pyrithione complex compound represented by the formula (I):



wherein M represents a divalent metal, M' represents a trivalent metal, Q represents one oxygen atom or two hydroxyl groups, Q' represents 3/2 oxygen atoms or 3 hydroxyl groups, x, y, p, q and n respectively denote 0 or a positive number satisfying the following equations: $0 \leq x \leq 1$, $0 \leq y \leq 1$, $0 \leq p + 2q < 6/5$ and $0 \leq n \leq 2$, (provided that x and y are not 0 at the same time), D represents $M(Py)_{2-p-2q}$ when $x \neq 0$ and $y = 0$ and $M'(Py)_{3-3p/2-3q}$ when $x = 0$ and $y \neq 0$ where Py represents 2-pyridylthio-N-oxide and A and B do not exist and either x or y is 0, which comprises adding 1/2 to 2 equivalent mol of an aqueous solution of a divalent or trivalent water-soluble metal salt and 3/4 to 3 equivalent mol of an aqueous alkali hydroxide solution to an aqueous alkali pyrithione solution and reacting the mixture at a pH of 9 to 12 to collect the precipitates.

6. A process for producing a pyrithione complex compound represented by the formula (I):



wherein M represents a divalent metal, M' represents a trivalent metal, Q represents one oxygen atom or two hydroxyl groups, Q' represents 3/2 oxygen atoms or 3 hydroxyl groups, x, y, p, q and n respectively denote 0 or a positive

number satisfying the following equations: $0 \leq x \leq 7$, $0 \leq y \leq 6$, $0 \leq p + 2q < 6/5$ and $0 \leq n \leq 7$, (provided that x and y are not 0 at the same time), D represents $M(Py)_{2-p-2q}$ where Py represents 2-pyridylthio-N-oxide, A represents a monovalent anion other than Py or shows that it does not exist and B represents a divalent anion or shows that it does not exist and $x \neq 0$ and $y \neq 0$., which comprises adding a water soluble salt of a divalent metal and a water-soluble salt of a trivalent metal to an aqueous solution containing an alkali pyrrhione, an alkali hydroxide and, according to the need, a monovalent anion other than pyrrhione and/or a divalent anion, adjusting the mixture to a pH 8 to 10 and collecting the obtained precipitates.

7. A process for producing a pyrrhione complex compound according to Claim 6, wherein, in the formula (I), M is Zn, M' is Al, A is at least one monovalent anion selected from Cl and NO_3 or shows that it does not exist, B is at least one divalent anion selected from CO_3 and SO_4 or shows that it does not exist and x , y , p , q , n , Q , Q' and D respectively have the same meaning as above.

8. A process for producing a pyrrhione complex compound according to Claim 5, wherein, in the formula (I), M is zinc, Q is one oxygen atom, D is zinc pyrrhione, $y = 0$, $p + 2q = 0$, $n = 0$, A and B do not exist and x is $1/3$.

9. A process for producing a pyrrhione complex compound according to any one of Claims 5 and 8, wherein the pyrrhione complex compound contains zinc oxide or a mixture of zinc oxide and zinc pyrrhione as a

byproduct and the exothermic peak temperature in thermal analysis (DTA) is 322 to 335°C.

10. A process for producing a pyrrithione complex compound according to Claim 5, wherein, in the formula (I), M is copper, Q is one oxygen atom or two hydroxyl groups, D is copper pyrrithione, $y = 0$, $p + 2q = 0$, $0 \leq n \leq 1$, A and B do not exist and x is $1/3$.

11. A process for producing a pyrrithione complex compound according to any one of Claims 5 and 10, wherein the pyrrithione complex compound contains copper (II) oxide or a mixture of copper (II) oxide and copper pyrrithione as a byproduct and the exothermic peak temperature in thermal analysis (DTA) is 282 to 294°C.

12. An antidandruff agent comprising one or more of the pyrrithione complex compounds as claimed in any one of Claims 1 to 4.

13. A hair-care product comprising the antidandruff agent as claimed in Claim 12 or the antidandruff agent and zinc oxide.

14. An underwater antifouling agent comprising one or more of the pyrrithione complex compounds as claimed in any one of Claims 1 to 4.

15. An underwater antifouling agent comprising a binder, one or more of the pyrrithione complex compounds as claimed in any one of Claims 1

to 4 and an inorganic copper compound and/or inorganic zinc compound as effective components.

16. An underwater antifouling agent according to Claim 15, wherein the binder is an acrylic resin, the inorganic copper compound is at least one type selected from copper (I) oxide, copper (II) oxide and copper thiocyanate and the inorganic zinc compound is zinc oxide.

17. A rot proofing / mildew-proofing agent or an antibacterial/ antifungal agent comprising one or more of the pyrithione complex compounds as claimed in any one of Claims 1 to 4 as effective components.

18. An aqueous product comprising the pyrithione complex compound as claimed in Claim 3 or a mixture of the pyrithione compound and zinc oxide and a 2-isothiazolone type preservative.